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The Bureau of Agricultural Engineering is assisting in the Migratory Waterfowl Program of the Bureau of Biological Survey, to which have been allotted various funds for the acquisition and development of lands for waterfowl refuges. Our bureau has assumed responsibility for the engineering features of the program. A study is being made of Des Lacs and Souris Rivers, N. Dak. Similar investigations are being made of Mud Lake in Marshall Co. Minn., and of the Mingo swamp area in Stoddard and Wayne Counties of southeastern Missouri. Some former members of the bureau have been employed to assist in the work.

The bureau is making an investigation preliminary to the construction of dams for a wild life demonstration project on the Department's farm at Boltsville, Md. Soil borings to determine suitable sites for the dams are in progress.

Mr. McCrory spent the period from July 28 to August 17 in the field, mostly in company with Mr. J. C. Salyer, director of the Migratory Waterfowl Program of the Biological Survey, making arrangements for the field work and studies of preferred sites.

A report in connection with the study of the possibilities of moving farmers from submarginal lands to localities where they will have better opportunities is being prepared by N. A. Kessler.

Professors Blasingame of Penn. State College and Lehman of the University of Illinois are in Washington working on the land use planning project.

During the past fiscal year the Division of Plans and Service has prepared plans for buildings for the various bureaus of the Department having a total value of about \$240,000,000.

About the first of August the Bureau offices were moved from temporary building "C" to the New South Building. The Bureau has the basement, first floor and part of the second floor of the uncompleted second wing.

A number of CCC camps have been established in North Dakota, Minnesota, and Wisconsin in connection with the drought relief program. M. P. Wynkoop, C. J. Francis, and L. C. Tschudy are engaged in this work, their duties consisting of supervising the construction of small dams for water conservation and gully control. Headquarters have been moved from Louisville to Milwaukee. C. L. Hamilton and J. D. Parsons are now covering the central States from the Milwaukee office. Similar work in Tennessee is now handled by W. D. Ellison and H. H. Lester from the New Orleans headquarters.

P. C. McGrew reports that the harvesting of winter wheat on the Pullman erosion experiment station is now complete. A 16-foot-cut combine harvester with straw spreader was used. This outfit functioned nicely on terraced fields with land slopes not exceeding 20 percent. On slopes greater than 20 percent the machine did not have sufficient clearance to cross the terraces and the draft requirement was greatly increased.

According to H. S. Riesbol, a mechanical device for rapid computation of total discharge from the circular charts used on erosion station water-level recorders has just been constructed at the Guthrie station. The device consists of a stylus which operates a marking point through a curved slot. A chart record is placed on the center of the instrument, the stylus is run over the gage-height line, and the marking point draws the discharge hydrograph on the same chart. A radial planimeter run over the discharge hydrograph obtains the mean discharge for the run-off period, and the total run-off is obtained from this mean discharge by a simple slide-rule computation.

Means and maximums of precipitation by 5 and 10 day periods at the Hays station for all years of record from 1868 to the present are being prepared by Raymond H. Drake.

Results of an experiment on terrace grade at the Tyler station show that on two terraces, one with a grade of 6 inches per 100 feet and the other with grade variable from 0 to 6 inches per 100 feet, the soil in each case was 3.6 times as large as that from a comparable level terrace. Terraces with intermediate grades of 3 inches per 100 feet and 0 to 3 inches per 100 feet lost more soil than the level terrace but less than the terraces of steeper grade.

Upon request of the Salt Lake City Water Commissioner, A. T. Mitchelson made a trip to Utah for the purpose of inspecting an area at the foot of the Wasatch Mountains as a possible location for a water-spreading project. A preliminary examination was made of the geological conditions prevailing on the Bonneville and Provo benches, the runoff from the five streams which would be utilized as a source of supply, and the physical lay-out necessary for installing an efficient spreading system. An estimate of cost was prepared and submitted to Washington for consideration in the event a FERA project covering this work should be approved.

Outlines of a number of water resources studied were prepared by M. R. Lewis for the Water Resources Committee of the Oregon State Planning Council. In the latter part of July Mr. Lewis left his headquarters at Corvallis, Ore., for St. Paul, Minn., to serve as consultant to the Regional Engineer of the FERA on water conservation projects in North and South Dakota.

Harry G. Nickle visited Lake Brownwood near Brownwood, Texas, to investigate the possibilities of taking various cross-sections of the reservoir in the near future for the purpose of estimating the volume of silt which has been deposited in the reservoir during the two years of operation, and to establish definite cross-section lines that can be located at future times to determine the amount of silt in the reservoir. The storage capacity of the reservoir is 125,000 acre-feet, but due to an accident to one of the outlet gates, almost all of the stored water has been lost. The low stage of the water affords an excellent opportunity to make the cross-sections referred to above, and it is expected this work will be done soon.

A suggested plan of sand trap was developed by R. L. Parshall for the Metropolitan Water District of Los Angeles. It was proposed to use the grating type of sand trap as a means of catching the blow sand entering the open portions of the Colorado River-Los Angeles aqueduct.

Upon request of the FERA, Carl Rohwer made an investigation as to the possibility of providing storage reservoirs on the LaPlata River in Colorado to increase the supply of water for irrigation. A field investigation was made

for the purpose of determining the availability of water for storage and of suitable sites for building reservoirs. It appears that there is urgent need for storage on this stream if the farmers are to be kept on their lands. The runoff from the LaPlata River occurs early in the season and even in normally wet years there is a severe shortage of water in the summer and fall. If storage is provided, the excess runoff in the winter and spring will be available for late irrigation.

Tests of a low carrier-beam furrowing machine for weed control in open furrows were made by Colin A. Taylor. This type is especially desirable for orchards where the lower branches of the trees are close to the ground, in order to lessen damage to the fruit on the lower branches. The furrows made by this type of machine are a considerable improvement over those made by the old type, and the irrigation water was applied more uniformly and efficiently and with less labor. Extension arms were added to the low carrier-beam so that it will mark out 7 broad shallow furrows in one operation. The extension arms are pivoted to fold back where there is insufficient room for turning the 7-furrow rig, which is 16 feet wide. This machine appears to be successful and will be tested further under field conditions.

In response to a request from the Tennessee Valley Authority, A. D. Edgar made a trip recently to Knoxville, Tenn., and vicinity to advise relative to the building of a potato storage house of 30,000 bushels capacity suitable for high altitudes in North Carolina and Tennessee. This will be a cooperative storage house.

The manuscript for a farmers' bulletin on "Farmhouse Plans" has been sent to the Printing Office.

G. M. Warren is assisting the Society of Domestic and Sanitary Engineering of Japan in a movement aimed at the standardization of drainage fittings for plumbing used in that country.

Field tests to determine and improve the boll-coverage efficiency of various cotton dusting machines with reference to pink bollworm control have been started at Presidio, Texas.

Two types of metal chinch bug barriers have been recently built and set up as a part of the cooperative project at Urbana, Ill. These barriers, together with several types of earth barriers and tar paper barriers, are being used with different repellent materials so as to determine not only the value of the different barrier types, but also of the various repellent materials which are being used in the experiments.

A beet lifter of the two-puller-blade-per-row type, similar to that used in eastern and Rocky Mountain areas, has been built up and is being tested in the Davis, Calif., area in comparison with the California type, subsoiler-with-wings beet lifter which is commonly used there. Tests so far indicates that the draft of the double-blade type is approximately only half as much per beet row lifted as that of the California type and the beets are left somewhat looser than with the beet-wings type. The double-blade type of lifter will probably be more adaptable to use on a mechanical beet harvester.

R. M. Merrill and O. K. Heddon conferred with J. S. Houser at the Ohio Agricultural Experiment Station at Wooster in regard to methods of control of apple flea weevil which is a serious pest in many Ohio orchards. Experimental burning in an orchard near Medina will be carried on this season. Returning from Wooster they conferred with Mr. Runner, U.S.D.A. entomologist, at Sandusky, Ohio, regarding methods of control for vineyard pests.

R. M. Merrill attended a meeting of entomologists at Orleans, Ind., where many different methods of control for codling moth are being tried. A burner developed at Toledo was used during the season in this work.

Description and drawings for public patent covering the disc jointers developed at Toledo have been prepared and sent to the Washington office.

Surveys now being carried on by the Bureau of Entomology and Plant Quarantine indicate that the corn borer infestation will be light this year in the western area of infestation. The damage to New England sweet corn, however, is unusually heavy this year.

Design of a fertilizer beet seed furrow opener and an elevator for beet harvester has been started at Fort Collins, Colo.

G. A. Culings conferred with officials of the Virginia Truck Experiment Station in regard to fertilizer placement attachments for truck crop seed drills and inspected the cooperative fertilizer placement experiment with lima beans at Norfolk on August 9. It is the general practice to broadcast fertilizers for the closely spaced row crops in advance of planting, and prepare a smooth bed for the seed which must have a very shallow but uniform covering. The practicability of mounting additional soil-working tools on drills for this purpose has to date been questioned by the implement manufacturers.

The effect of fertilizer placement on lima beans is indicated to be in line with experiments on other crops. Application of fertilizer at the side of the row is superior to broadcasting, placement under the seed, or mixed with the soil in the row.

The Interbureau Committee on Wheat Smut Control has requested that a report dealing with seed cleaning machinery, prepared by W. M. Hurst and W. R. Humphries, be published as a Department Circular. Preliminary work on this project was done by L. G. Schoenleber.

Preliminary tests conducted with the tower drier, which was recently built at Jeanerette in connection with the forage drying project, indicate that in drying soybeans the evaporating factor is somewhat higher than in the other types of driers.